



**Masabi Hardware:
Justride Validator (JRV)
Installation Work Instruction**

DRAFT

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CONFIDENTIAL

Revision History

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1 Introduction

The Justride Validator (JRV) is a ticket validator, which supports Barcode tickets as well as MIFARE and cEMV cards, and can be installed on vehicles. This document details the installation procedure of the JRV. This installation process is followed by the Installation Acceptance Test (IAT) which commissions the JRV.

1.1 Purpose

The purpose of this document is to provide detailed instructions for the installation of the JRV on a handrail or pole onboard a vehicle.

1.2 Objective

Installation of the JRV onto a handrail or pole onboard a vehicle in a horizontal or vertical orientation to enable ticket validation.

1.3 Health & Safety Precautions



Eye Protection

Eye protection must be worn during installation.



Hearing Protection

Suitable hearing protection must be worn whilst using power tools, e.g., drilling poles.

Warning: Only hazards presented directly by the JRV assembly parts provided by Masabi are listed. Masabi cannot provide safety guidelines for the numerous vehicles and places the JRV might be installed. Please refer to original manufacturer documents and safety notices on or in the vehicle for other hazards and associated precautions.

Warning: While working on the bus, it must be powered down and any power supply disconnected.

1.3 Conventions

Throughout this document the following format will be used for notes and important information:

Important: Mandatory and important notes that must be fulfilled

Note: Important notes regarding mandatory requirements that may affect correct operation but do not present a safety risk or danger of damage to equipment.

Recommendation: A non-mandatory addition to the instruction intended to highlight methods of completing actions that were previously found to be the most efficient or easiest.

Throughout this document Masabi’s Customer will be referred to as “the Agency”, transit riders or Customers of the Agency will be referred to as “Cardholders”.

1.4 Glossary

Note: Part and assembly names will be defined in the Orientation Section of this document.

Acronym	Definition
cEMV	Contactless EMV
EMV	Europay Mastercard Visa
HW	Hardware
IAT	Installation Acceptance Test
IAT-R	Installation Acceptance Test Record
JRV	Justride Validator
N/A	Not applicable
PCI	Payment Card Industry
SAM	Secure Access Memory
TBA	To be announced

1.5 References

Doc #	Reference
DT1-0007	JRV Installation Acceptance Test (IAT) Procedure (latest issue)

DT2-0007	JRV Installation Acceptance Test Record (IAT-R) (latest issue)
DI2-002	JRV Hole Positions
TBA	JRV Maintenance Work Instruction (latest issue)
DP3-0001	JRV PCI HW Compliance Plan (latest issue)
	Note: The JRV Electronics Enclosure contains a cEMV reader. If the JRV is to be used in a deployment which handles cEMV cards, or may in the future, applicable PCI handling procedures must be adopted and adhered to. In these cases, ensure that all handling is completed in accordance with the requirements laid out in the latest revision of DP3-0001 - JRV PCI HW Compliance Plan. Contact Masabi for further details.
DP1-0001	Warranty Plan (latest issue)

Note: All documents can be requested via support@masabi.com

2 Overview of Completed Installation

The picture below shows the JRV after the completed installation.

Figure 2-1 Completed JRV Installation

3 Installation Process

The process of installing the JRV is broken down into four parts:

1. Preparing the pole (chapter 4)
2. Wiring (chapter 5)
3. Installing the JRV Mounting Kit on a prepared pole (chapter 6)
4. Installing the JRV Electronics Enclosure (chapter 7)

Complete installation should be completed in one session. Occasionally, only the second installation process is needed, i.e. where the JRV Electronics Enclosure is swapped. The instructions to complete the above two parts are detailed in the following sections.

Important: If the JRV Mounting Kit is installed but the JRV Electronics Enclosure is not, or if the JRV Electronic Enclosure is removed without a replacement being fitted, the JRV Mounting Kit should be covered and the wiring to it isolated.

At the completion of the instructions in this document, the JRV will be installed. Commissioning of the JRV is completed during the Installation Acceptance Test (IAT).

4 Installation Part 1 - Preparing the pole

In this chapter the pole, the JRV is installed on will be prepared. Before starting the installation make sure that the pole is safely attached and fulfils the requirement of chapter 4.3.

4.1 Parts Required

Item	Masabi Part Number	Quantity
Bus Pole (see requirements in chapter 4.3)		1
M6 Rivet Nut Insert		2
JRV Hole Position template	DI2-0002	1
Mounting kit	AM0-0001	1

4.2 Tools and Accessories Required

Item	Quantity
Drill (Battery Powered)	1
22 mm / 7/8" hole saw or step drill bit (suitable for pole material)	1
Drill bit with a diameter corresponding to the outer diameter of the chosen rivet nut inserts	1
M6 rivet nut inserter	1
Hammer	1
Center Punch	1
Deburring tool	1
Personal Protection Equipment	1

4.3 Pole Requirements

The JRV mounting kit can be installed on any pole that fulfils the following requirements:

- Unencumbered straight length of at least 324 mm (12 ⁴/₅")
- The pole should be made of Brushed Stainless Steel or powder coated Stainless Steel to match existing poles or Customer specification as required
- The pole diameter is between 1 ¼ " and 1 ½" (31.75mm and 38.10mm)
- The pole is robust and solidly attached to the vehicle, i.e. cannot be moved without tools
- The pole is a hollow cylinder that wiring can be run inside.

4.4 Drilling and Inserts

Important: Use your Personal Protection Equipment for this step

There are three holes as shown in document DI2-0002 (see Figure 4.1) that have to be drilled in order to mount the JRV mounting kit:

- One (1) 22mm / 7/8" hole to run cables into the JRV using a hole saw
- Two (2) holes to fit two (2) M6 / 1/4" nut inserts using a drill bit

Note: The following steps assume that the JRV is mounted vertically, i.e. the mounting pole is vertical .

Important: If the JRV is not in a vertical orientation, contact Masabi beforehand. Certain standards and warranty assurances are only applicable for the vertical mount.

1. Allocate the space for the JRV

Recommendation: Print DI2-0002 (see Figure 4.1) on self-adhesive paper in 1:1 scale. Use the print as a drilling template. Place the template on the pole and attach it temporarily, e.g., using adhesive tape.

2. Use a Center Punch to mark the centre of the three holes according to DI2-0002.
 - a. The vertical centerline of the pole is also the centerline of the JRV.
 - b. The holes must be drilled so that the largest hole is located at the bottom.
 - c.

Note: This document can be requested via support@masabi.com

Important: There must be at least 16.1 mm (0.63") of straight pole in both directions of the centerline.

3. Use the 22 mm / 7/8" hole saw to drill the bottom hole.
4. Debur the hole using the deburring tool.
5. Verify the centre punch marks for the remaining two holes by placing the mounting kit on the pole, line up the large hole cable guide on the mounting kit with the 22mm / 7/8" hole drilled into the pole.
6. Check the markings of the Center Punch are in the centre of the 2 upper holes of the mounting kit. Correct the location if required.
7. Choose a drill bit size according to the outer diameter of the rivet nut inserts that will be fitted into the holes and drill the two upper holes.
8. Install the rivet nuts using the rivet nut inserter.

Important: The rivet nuts need to be installed flush and even through the holes.

9. Check if the Mounting Kit is placed squarely on the pole. If not, the Mounting Kit will be damaged when it is installed.

5 Installation Part 2 - Wiring

In this chapter, the wiring of the JRV is described. Depending on the required communication protocols the installation can be simplified. Crimp connectors, cable ties and other installation material should be chosen according to the bus requirements.

5.1 Selected communication

There are several communication protocols the JRV supports. Depending on the communication, there are different wiring requirements for the JRV. For the functionality of all communication protocols, two (2) cables with the following specifications are needed:

- Cat 5e twisted pair or better
- Shielded
- Stranded
- 24 AWG or bigger

The cable ends will be terminated with shielded RJ50 connectors with the following pinouts:

Table 5-1 Pinouts of RJ50 Connectors on the JRV Electronics Assembly

PIN #	Connector 1	Connector 2
1	CAN_P	MUX P1
2	TX_P	RS232 Rx
3	TX_N	RS232 Tx
4	RX_P	RS232 RTS
5	+V (9-36 V DC) Power	RS485 P
6	+V (9-36 V DC) Power	RS485 N
7	RX_N	RS232 CTS
8	Ground	Ground
9	Ground	Ground
10	CAN_N	MUX P10

If no CAN bus is used, instead of 5 twisted pair shielded cable and shielded RJ50 connectors, 4 twisted pair shielded cable and shielded RJ45 connectors can be used, all other specifications remain the same.

A second cable can support RS-232, RS-485 and/or J1708. If only some of those protocols are needed please contact support@masabi.com to obtain support with a wiring plan according to your specific requirements.

5.2 Parts Required

Item	Masabi Part Number	Quantity
JRV Splitter cable	MMC-0001	1
Cables as described in section 5.1	N/A	As required
Connectors as described in section 5.1	N/A	As required
Crimp contacts to connect cables with bus	N/A	As required
Cable ties	N/A	As required
Split Loom (Conduit)	N/A	As required
Inline Fuse Holder	N/A	1(O)

5.3 Tools Required

Item	Quantity
Cable Fish Tape	1
Cable Cutters	1
Cable Strippers	1
Crimp tool according to the chosen crimps	1
RJ50/RJ45 Crimp Tool (dependant on installation)	1
Cable strippers for 10-way, 5-pair cable outer and inner sheaths (dependant on installation)	1
Generic toolset to open bus panels, etc	1

1. Open the bus panels to run the cable. The cable must run from the pole that the JRV will be attached to to location(s) where Ethernet connectivity and power are to be provided, commonly the bus communication cabinet.
2. Prepare the cabling:
 - a. Cut the cables to the right length, so the cable can run from the 22mm / 7/8" hole in the pole to the communication cabinet. Ensure there is at least 30 cm of slack at each end.
 - b. Cut the Split Loom to the same length less the slack.

- c. Feed the cable into the Split Loom to protect it for later installation
3. Open the bus panels to run the cable. The cable has to run from the JRV to the location(s) where Ethernet connectivity and power are to be provided, commonly the bus communication cabinet.
4. Use cable ties to tidily secure the cable to the cable harness of the bus as required.
5. Feed the cable from the location(s) where Ethernet connectivity and power are to be connected, e.g., the communication cabinet, to the 22mm / 7/8" hole on the pole the JRV will be attached to. Feed the cable through the hole making sure that there is at least a 30 cm tail coming out of the hole.
6. Crimp an RJ50/RJ45 Connector onto the cable at the pole side according to table 5-1, column "Connector 1"

Note: If pre-crimped cables were used check the RJ50/RJ45 connector for potential damage

7. Crimp an RJ50/RJ45 Connector onto the other end of the cable according to table 5-1, column "Connector 1".

Note: If pre-crimped cables were used check the RJ50/RJ45 connector for potential damage

8. Install the JRV Splitter Cable by connecting its female RJ50 connector to the male RJ50/RJ45 installed in Step 7.

9. Terminate and connect the power cables (12/24vdc) of the JRV Splitter Cable to the bus power supply. This is dependent on the particulars of the installation. Install the Inline Fuse Holder on the Positive (+) of the DC power supply if there is no power supply with a free Fuse slot available.

Important: A 1A UL recognised fuse, i.e., with a UL Recognized Component Mark, must be installed on the Positive (+) side of the DC supply voltage going to the JRV to protect the cabling and ensure that the JRV is powered from a Limited Power Source. The fuse must be installed as close to the power supply bar/connection of the bus as possible.

Warning: Do not insert the 1A Fuse yet.

10. Connect the RJ45 connector of the JRV Splitter Cable to the Ethernet connection provided on board the bus. This is dependent on the particulars of the installation.

6 Installation Part 3 - Installation of the Mounting Kit

This section details the installation of the JRV Mounting Kit of the JRV onto a prepared pole.

Note: Depending on the particulars of the installation, the connections made to the vehicle or other systems may vary. This will be detailed in additional documentation related to the deployment or installation as necessary.

Warning: If the JRV Mounting Kit is installed but the JRV Electronics Enclosure is removed without a replacement being fitted, the JRV Mounting Kit should be covered and the wiring insulated.

6.1 Parts Required

(O) denotes optional parts, i.e. only required for some particular installations.

Item	Masabi Part Number	Quantity
JRV Mounting Kit	AM0-0001	1
Anti-Spin Lug Bar	PM0-0012	1
Stainless Steel cable tie	PM0-0012	2
M6 Screw		2
2.5 x 10mm Screw	PM1-0001	2 or 4 (O)
Washer M2.5 mm		2 or 4 (O)
Plastic shim		1 or 2 (O)
Ferrite Core		1 or 2 (O)
QRAC		1 or 2 (O)

6.2 Tools Required

Item	Quantity
Screwdriver Torx T7	1
Allen Key	1
Steel Cable Tie Tensioner	1
RJ50/RJ45 Crimp Tool (dependant on installation)	1
Cable strippers for 10-way, 5-pair / 8-way, 4 pair cable outer and inner sheaths (dependant on installation)	1

Pliers	1
Loctite 242 Series Threadlocker "Blue Liquid" (or equivalent)	1

6.3 JRV Mounting Kit Installation Instructions

The JRV Mounting Kit is installed onto a pole and the cable harness connected to the existing vehicle or station harness. Installation requires a single person to complete.

1. Inspect the JRV Mounting Kit for unacceptable physical damage like scratches or cracks.

Warning: Damaged units must be reported immediately to Masabi and are not suitable for installation.

2. Fit the Anti-Spin-Lug Bar into the JRV Mounting Kit.
3. Feed the connection cable(s) through the hole in the bottom of the JRV Mounting Kit.
4. Place the JRV Mounting Kit on the pole so that the JRV Mounting Kit is placed flat and flush onto the pole. The holes in the Anti-Spin-Lug Bar need to be centered over the 2 rivnuts and the large cable hole grommet must fit into the 22mm / 7/8" hole in the pole.

Note: In order to mount the JRV flat the attached grommet of the JRV must be placed into the 22mm / 7/8" hole in the pole.

Warning: If the JRV Mounting Kit is not placed flat on the pole the unit might be damaged further in the installation process

5. Apply a small amount of the Loctite 242 Threadlocker (or equivalent) to each of the M6 screws before installing.
6. Screw the JRV Mounting Kit with two (2) M6 screws onto the pole using a screwdriver.

Warning: If a different M6 screw than the suggested one is used make sure the head height is less than 2.8mm. Otherwise, the JRV Electronics Enclosure cannot be fitted

7. Feed the tail of one (1) metal cable tie through the left opening at the top of the JRV Mounting Kit. The silver fastener must not be fed through the opening.
8. Feed the tail of that cable tie around the pole and through the other (top right) opening.
9. Feed the tail of the cable tie through the silver fastener of the cable tie.
10. Move the fastener to the right side of the JRV Mounting Kit so that the fastener is below the level of the Anti-Spin-Lug Bar but not fed through the opening in the back of the JRV Mounting Kit. Make sure that the cable tie will stay in this position for the following steps 9-11.
11. Pull the tail through the fastener as much as possible by hand.

12. Use the Cable Tie Tensioner as following:

- a. Make sure the pulling aperture of the tool is next to the feeding aperture of the Cable Tie Fastener and is staying there. Rotating the crossbar anti-clockwise will move the pulling aperture towards the feeding aperture.
- b. Feed the tail of the cable tie through the slot on the left of the feeding aperture. The metal lever is facing towards you.
- c. Open the slot of the pulling aperture by pushing the black plastic lever away from the aperture. Hold it in that position
- d. Feed the tail of the cable tie through the pulling aperture.
- e. Place the feeding aperture just behind the silver fastener and as close to the pole as possible.
- f. Let the black plastic lever go.
- g. Rotate the crossbar clockwise, the pulling aperture will start to move and tighten the metal cable tie.
- h. Once the cable tie is tightened, cut the tail by pushing the silver lever away from the tool.

Note: If the metal cable tie is over tightened, the tail of the metal cable tie might rip in the Cable Tie Fastener . In that case repeat steps a-f before cutting the tail at the right place.

- i. Remove the tool

13. Bend the tail of the cable tie away from the pole so that the sharp edge is not exposed. Use pliers to bend them.

Warning: The tail end might be sharp.

14. If not already fitted on arrival, place the Plastic Shim into the cable bracket in the Mounting Kit. The U-shape of the Plastic Shim should be aligned with the U-Shape of the cable bracket. Make sure it is based flat on the bottom of the cable bracket.

Note: Potentially, the Plastic Shims are already inserted. If you can see a transparent plastic part on the bottom of the cable bracket, don't insert additional Plastic Shims.

15. Place the RJ50 connector of the Quick Release Adapter Cable (QRAC) into the cable bracket in the Mounting Kit marked "1". Note that the clip of the RJ50/RJ45 plug, i.e. the clip secures the plug into the socket, must be facing away from the operator and towards the Mounting Kit and the clip must be depressed so that it fit into the receptacle as it is pushed in. The Socket on the right-hand side, labelled "1", is for cable 1 (Power, Ethernet and CAN), and the Socket on the left side, labelled "2", for cable 2 (Serial communications).

16. Secure the cable(s) by fitting the Cable Clamp and fastening it using two (2) 2.5 x 10 mm screws (Torx T7) and two (2) M2.5 washers.

17. Install one (1) Ferrite Core to the cable(s) on the QRAC cable, centrally between the two M6 screws that secure the JRV Mounting Kit to the pole. The Ferrite Core should sit as close to the female RJ50 connector as possible. The Ferrite Core is installed by placing the cable into one of the two channels of the open Ferrite Core and then pressing both halves of the Ferrite Core together around the cable. Check that the clips lock into place. The Ferrite Core should now be difficult to unfold.

18. Attach the housing of the female RJ50 connector with Adhesive to the Mounting Kit.

19.

20. Route the cables to ensure they run down the right-hand side, as viewed from the front, of the JRV Mounting Kit. Ensure that any slack is taken up into the pole.

21.

22. Ensure that the cables are still in place. Ideally they should be run as close to the pole as possible before bending at a right angle over the upper metal cable tie.

Note: If the JRV Electronics Enclosure is not going to be installed straight away, cover the JRV Mounting Kit and insulate the connections before leaving the installation unattended.

23. Insert the 1A fuse into the Fuse Holder.

6.4 JRV Mounting Kit Post-Installation Test

Once installation has been completed as per the previous section, the following tests and inspections need to be carried out:

#	Correct Installation Mounting Kit
1	Check if the Mounting Kit is placed flat on the pole. The tube-like cable grommet of the mounting kit is inserted into the large hole in the pole.
2	The metal Anti-Spin-Lug Bar is placed in the Mounting Kit.
3	Two (2) M6 screws are holding the Anti-Spin Lug Bar and the Mounting Kit attached to the pole.
4	The two (2) M6 screws are sufficiently tightened.
5	Two (2) metal cable ties attach the Mounting Kit on the pole.
6	Both metal cable ties are sufficiently tightened.

#	Correct Wiring
1	The cable connector(s) is(are) placed in the socket(s) at the top of the unit. The contacts are facing upwards. If the installation only requires one cable it is placed in the right Socket that is marked number 1.
2	Each cable connector is held in the socket with the cable retainer, the Connector cannot be moved.
3	Check that the transparent Plastic Shim is fitted in the cable bracket. It should be placed flat on the bottom of the bracket, the RJ50/RJ45 connector is squeezing it downwards from the top.
4	The cable(s) are running on the right hand side of the mounting kit as close to the pole as possible.
5	Each cable has a Ferrite Core attached.

7 Installation Part 4 - Installing the JRV Electronics Enclosure

This section details the installation of the JRV Electronics Enclosure onto the previously installed JRV Mounting Kit as per the instructions in the previous section. At the conclusion of this section the JRV installation will be complete and ready to be commissioned and tested as per the Installation Acceptance Test (IAT) Plan.

7.1 Required Parts

Item	Masabi Part Number	Quantity
JRV Electronics Enclosure	AM0-0002-01	1
SAM		1* (0)

Note: The JRV Electronics Enclosure contains a cEMV reader. If the JRV is to be used in a deployment which handles cEMV cards, or may in the future, applicable PCI handling procedures must be adopted and adhered to. In these cases, ensure that all handling is completed in accordance with the requirements laid out in the latest revision of DP3-0001 - JRV PCI HW Compliance Plan. Contact Masabi for further details.

* If required.

7.2 Required Tools

Item	Quantity
Screwdriver Torx T20	1* (0)
JRV Key	1

* If required.

7.3 Pre-Installation Test

Complete the JRV Electronics Enclosure Pre-Installation Test section of the JRV Test Record.

7.4 Installation Instructions

- 1) Confirm that the JRV is not damaged and has not been tampered with. Unexpected cabling or scratches around the screws might indicate tampering.

Warning: Damaged units must be reported immediately to Masabi and are not suitable for installation.

Mandatory PCI Requirement: If the JRV is to be used with cEMV cards either immediately or in the future, any suspicion of tampering must be reported to Masabi immediately. The unit **must not** be used. Follow the procedure as described in DP3-0001 Masabi Hardware: Justride Validator (JRV) Payment Card Industries (PCI) Hardware Compliance Plan.

- 2) If the Card Reader is to be used with a system requiring a SAM, please insert the SAM:
 - a. Remove the 5 screws of the transparent SIM/SAM Cover using a Torx T20 screwdriver.
 - b. Remove the SIM/SAM Cover
 - c. Insert the SAM in slot 1 (upper slot) of the Card Reader. In order to insert the SAM correctly its contacts should face downwards towards the Card Reader. The tapered corner of the SAM will not be inserted.
 - d. Make sure that the SAM is pushed firmly into the Card Reader.
 - e. Check the seal on the JRV Electronics Enclosure is intact and undamaged before replacing the SIM/SAM Cover
 - f. Refit the SIM/SAM Cover
 - g. Tighten the 5 screws of the SIM/SAM cover.
- 3) Use the JRV Key to turn the lock on the JRV Mounting Kit to the “unlocked” position
- 4) Slot the JRV Electronics Enclosure onto the JRV Mounting Kit, by offering it to the JRV Mounting Kit approximately 2cm higher than its final position and sliding it downwards.
- 5) Use the JRV Key to turn the lock on the JRV Mounting Kit to the “locked” position
- 6) Check that the unit is securely installed.

8 Installation Acceptance Test (IAT)

The purpose of the Installation Acceptance Test (IAT) is to approve the successful installation of the JRV and verify that it fulfils the requirements set by the customer and Masabi. Before a JRV is allowed to be in service it must be tested according to the IAT procedure and signed off.

The objectives of the IAT are to:

- Confirm that the JRV is installed correctly.
- Confirm that ticket validation functions correctly with all ticket types.
- Confirm connectivity and expected behaviour between the JRV and the Masabi back-office via an internet connection.

The IAT procedure is outlined in the DT1-0007 JRV Installation Acceptance Test (IAT) Procedure and the test results are recorded in DT2-0007 JRV Installation Acceptance Test Record (IAT-R).

9 Post-Installation Troubleshooting

If the test fails after installation follow the troubleshooting instructions listed in the table below.

If the JRV is replaced please inform support@masabi.com with the reason and provide as much information as possible, including the exact time, username used, bus the JRV was installed on and the details of any testing, etc., done so that we are able to support troubleshooting and attempt to reproduce the issue as quickly as possible.

Note: If possible, delocalise the JRV before taking it from the bus. In order to do so, scan the delocalisation barcode. N.B., if the JRV is not able to read barcodes this process is not possible.

Where hardware is deemed to be faulty, it should be reported and returned under the appropriate Warranty Plan, DP1-0001.

Warning: If a SAM was inserted into the Card Reader, it must be removed before shipping a defective unit back as it contains Customer specific data, unless otherwise requested by Masabi for debugging purposes.

Issue	Test	Resolution
JRV shows signs of tampering		Inform your supervisor immediately. The JRV must not go into service. Act according to the latest issue of DP3-0001 JRV PCI HW Compliance Plan
JRV is physically damaged		Replace Electronics Enclosure or Mounting Kit, depending on where the damage occurs. Report the defective hardware to Masabi in accordance with the latest issue of the Warranty Plan, DP1-0001.
JRV does not power up	Check that the bus battery is charged and the bus is not isolated from its power supply	Connect bus to its power supply
	Check if Bus ignition is set to 'ON'	Turn on ignition
	Check the fuse is connected correctly	Reseat fuse
	Check the fuse is not blown	Check whether the fuse was blown due to unit or cabling issues before replacing the fuse. Replace the fuse.
	Check if the RJ50/RJ45	Recrimp RJ50/RJ45

	connectors are correctly attached to the cable and not damaged	connector(s)
	Measure voltage to the JRV Mounting Kit Connector on Pin 5 (power) and 8 (ground). Check the voltage is the correct supply voltage (9-36 V DC)	Connect to power or check cabling between the JRV Mounting Kit and the connection to the bus power supply.
	Otherwise	Replace JRV Electronics Enclosure
JRV is not solidly fitted to the pole	Check that Anti-Spin-Lug Bar has been fitted	Fit Anti-Spin-Lug Bar
	Check that the M6 screws have been tightened sufficiently	Tighten M6 screws
	Check if the mounting pole fulfills the requirements named in 4.3.	Use a different pole
JRV Electronics Enclosure does not fit onto the JRV Mounting Kit	Check if the Mounting Kit is installed straight and even on the pole.	Reinstall Mounting Kit
	Check for obstructions such as out of place cabling, Ferrite Cores and/or metal cable ties	Remove obstruction
	Check if the heatsink pins are bent	Carefully bend them back in place
	Check if the teeth on in the mounting kit or Electronic enclosure are damaged	Replace Mounting Kit and/or Electronic Enclosure if teeth are damaged.
	Check if SIM/SAM cover of the Electronic Enclosure is attached and seated correctly	Reopen and close the SIM/SAM cover to ensure it is seated correctly
	Check if swapping the JRV Electronics Enclosure resolve the problem	Replace the JRV Electronic Enclosure
	Otherwise	Replace the JRV Mounting Kit
JRV is rebooting under vibration	Check if the Plastic Shim is inserted	Insert the Plastic Shim
	Check all crimps for possible loose connection.	Recrimp loose connections
	Check wiring for possible	Replace damaged cable

	broken cable	
	Otherwise	Replace JRV Electronics Enclosure
JRV does not scan barcodes at all (no reaction)	Check if you can scan another ticket, i.e. the ticket could be crumpled up. Hold a good ticket several seconds over the scanner	Ticket fulfilled not the requirements
	Check if the glass in front of the camera is clean	Clean the glass
	Check for big scratches in the glass	Replace JRV Electronics Enclosure
	Reboot JRV and check if ticket can be scanned	If ticket can be scanned now please report issue immediately to support@masabi.com
	Otherwise	Swap JRV Electronics Enclosure if there is no reaction
JRV does not log in	Check if the JRV does not show any reaction to a presented Barcode	Continue as issue “JRV does not scan barcodes at all (no reaction)”
	Otherwise	Continue at issue “JRV has no internet connection”
JRV Display is ‘ghosting’ or has a burnt in Display	Check if rebooting solves the issue	Monitor if the unit; replace the JRV Electronic Enclosure if the issue reappear
	Otherwise	Replace JRV Electronic Enclosure
JRV does not play any sound	Check the sound level setting in the Hub.	Increase the sound level, 6 is the highest sound level and chosen by default. The update can take up to an hour after the first reboot.
	Otherwise	Replace JRV Electronic Enclosure
JRV sound level is too low/high or distorted	Check the sound level setting in the Hub.	Change the sound level in the hub. The update can take up to an hour after the first reboot.
	Otherwise	Replace JRV Electronic Enclosure

JRV has no internet connection	Reboot JRV and check if there is a IP address shown at the Information Screen when booting	There is a connection to the router, check router connection. Consult the router supplier if needed.
	Check the ethernet cable is connected to the correct router port	Plug Ethernet cable into the correct router port
	Check if the Plastic Shim is inserted	Insert the Plastic Shim
	Check RJ45/50 plug for possible loose connection	Recrimp RJ45/50 plug
	Check wiring for possible broken cable	Replace damaged cable
	Otherwise	Replace JRV Electronic Enclosure
JRV does not scan Smartcards	Check if Smartcard can be scanned on other JRV	If the Smartcard doesn't work at all the ticket is defect
	Reboot JRV and check if Smartcard can be scanned	If ticket can be scanned now please report issue immediately to support@masabi.com
	Check if SAM is correctly inserted in Slot 1 of the Card reader	Insert the SAM correctly
	Check if swapping the SAM solves the problem	Replace the SAM
	Otherwise	Replace JRV Electronic Enclosure

If you find a different issue please feel free to contact support@masabi.com.

10 Support Contacts

Where issues are experienced that cannot be addressed through the content of this document or the Maintenance Work Instruction, these should be reported to your supervisor who will raise a query with Masabi for further support.

Issues or queries not featured in this document should be reported to support@masabi.com.

11 Reporting Damaged or Faulty Parts

Parts that are found to be damaged or faulty on arrival should be reported to Masabi as per the instructions within DP1-0001 Warranty Plan.